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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/554,286	10/25/2005	Friedrich Linhart	278601US0PCT	3259

22850 7590 04/01/2008  
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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WALTERS JR, ROBERT S

ART UNIT	PAPER NUMBER
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4172

NOTIFICATION DATE	DELIVERY MODE
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04/01/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/554,286	<b>Applicant(s)</b> LINHART ET AL.	
	<b>Examiner</b> ROBERT S. WALTERS JR	<b>Art Unit</b> 4172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10/6/2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/25/2005</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

*Claims 1-7 are pending and presented for examination.*

### ***Specification***

The abstract of the disclosure is objected to because legal phraseology should be avoided and the word "said" appears in the abstract. Correction is required. See MPEP § 608.01(b).

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### ***Arrangement of the Specification***

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.

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- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

The use of the trademark CATIOFAST®, LURESIN®, and STYRONAL® has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

### ***Claim Objections***

Claims 1 and 5 are objected to because of the following informalities: the "of" should be removed that comes before "from" in the last sentence of both claims. The "of" in claim 1 in front of "the paper product" at the end of the sentence should be removed. Appropriate correction is required.

Claims 2 and 3 are objected to because of the following informalities: it should read the charge density of the polymers comprising vinylamine units, rather than the charge density of the polycation in the polymer. Appropriate correction is required.

Claim 4 is objected to because of the following informalities: it should read wherein the polymer, rather than the polycation of the polymer. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koichi et al. (Japanese Patent Pub. No. 60109894) in view of Dyllick-Brenzinger et al. (U.S. Pat. No. 6132558).

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Claim 1 is drawn to a process for improving printability of paper and paper products by treating the products with aqueous solutions of cationic polymers, wherein the polymers have a charge density of at least 3 meq/g, and is applied in an amount from 0.05 to 5 g/m<sup>2</sup>.

Koichi et al. teach applying an aqueous solution of a dimethyldiallylammonium chloride polymer to a paper in a paper-making step, where the amount applied is preferably 0.1-2.5 g/m<sup>2</sup> (abstract).

However, Koichi et al. are silent on the charge density of the cationic polymer.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Koichi et al. with Dyllick-Brenzinger et al. because Dyllick-Brenzinger teach using a cationic polymer in the production of paper and cardboard having a charge density of from 4 to 18 meq/g (claim 8).

One would have been motivated to make such modification because the polymers described by Dyllick-Brenzinger et al. comprise the same essential features as those of Koichi et al. and the polymers being utilized by Dyllick-Benzinger are already being utilized in paper production as drainage agents (column 2, lines 13-20), therefore it would be obvious to consider a further application of these polymers to the surface of a fabricated sheet of paper. Further motivation is provided by Shigeo and Ryuichi (Japanese Patent Pub. No. 59198188) who teach using polyethyleneimine as a coating on paper to invoke water resistance using a similar process to that described in claim 1 (abstract), these polymers being essentially the same as those outlined in Dyllick-Brenzinger et al.

Claim 2 is drawn to the process of claim 1 further limited in that the charge density is from 3.5 to 23 meq/g and claim 3 is drawn to the process of claim 1 further limited in that the

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charge density is from 8 to 20 meq/g. These claims again are unpatentable over Koichi et al. in view of Dyllick-Brenzinger et al. for the reasons set forth above.

Claim 4 is drawn to the process of claim 1 further limited in that the polymer has a molar mass of at least 10000. Koichi et al. teach applying an aqueous solution of a dimethyldiallylammonium chloride polymer to a paper in a paper-making step, where the amount applied is preferably 0.1-2.5 g/m<sup>2</sup> (abstract). However, Koichi et al. are silent on the charge density of the cationic polymer as well as the molar mass. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Koichi et al. with Dyllick-Brenzinger et al. because Dyllick-Brenzinger teach using a cationic polymer in the production of paper and cardboard having a charge density of from 4 to 18 meq/g (claim 8), that polymer having a molar mass from 5000 to 3000000 (claim 1). Once again one would have been motivated to make such modification for the reason set forth above.

Claim 5 is drawn to the process of claim 1 further limited in that the polymers used are hydrolyzed homo- or copolymers of N-vinylformamide having a degree of hydrolysis from 20 to 100%. Koichi et al. in view of Dyllick-Brenzinger et al. teach all the features of claim 1 as outlined above. Koichi et al. however is silent on the use of hydrolyzed homo- or copolymers of N-vinylformamide having a degree of hydrolysis from 20 to 100%. However, again it would have been obvious to one skilled in the art to modify Koichi et al. with Dyllick-Brenzinger et al. because Dyllick-Brenzinger et al. teach using these partially or completely hydrolyzed polymers (claim 8). One would have been motivated to make such modification for the reason set forth above.

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Claim 6 is drawn to the process of claim 1 further limited in how the aqueous solution is applied to the paper including using a size press, a film press, a spraying means, a coating unit or a paper calender. Koichi et al teach all the features outlined above as well as teaching that the solution can be sprayed on or applied using a size press (abstract), however is silent on the charge density of the polymer. So once again, for the reasons outlined above it would have been obvious to modify Koichi et al. with Dyllick-Benzinger et al.

Claim 7 is drawn to a paper obtained by the process outlined in claim 1. Koichi et al. teach that a paper product can be produced by the same process as outlined, but is silent on the charge density of the polymer used, but again for the same reasons outlined above it would have been obvious to modify Koichi et al. with Dyllick-Benzinger et al.

### ***Conclusion***

Claims 1-7 are pending.

Claims 1-7 are rejected.

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT S. WALTERS JR whose telephone number is (571)270-5351. The examiner can normally be reached on Monday-Thursday, 6:30am to 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571)272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ROBERT S. WALTERS JR/  
March 25, 2008  
Examiner, Art Unit 4172

/Vickie Kim/  
Supervisory Patent Examiner, Art Unit  
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